CoCoA-5 - Bug #1475

HilbertSeries: make into proper rational function

06 Aug 2020 12:22 - John Abbott

Status:	New	**Start date:**	06 Aug 2020
Priority:	Normal	**Due date:**	
Assignee:		**% Done:**	0%
Category:	enhancing/improving	**Estimated time:**	0.00 hour
Target version:	CoCoA-5.4.2	**Spent time:**	0.40 hour

Description

It would be nicer if one could obtain a proper rational function as a hilbert series.

Related issues:

Related to CoCoA-5 - Bug #1745: Printing of Hilbert series via indent	**Closed**	**22 May 2023**

History

#1 - 06 Aug 2020 12:23 - John Abbott

Andraschko's original email:

Arithmetic on Hilbert series or Hilbert functions. E.g. the code

```
/**/ S ::= QQ[x1,x2,x3,x4];
/**/ I := ideal(S,[RingElem(S,"x4")]);
/**/ H1 := HilbertSeries(R);
/**/ H2 := HilbertSeries(S/I);
/**/ H1 = H2;
```

produces two warnings that CoCoA is untagging the operators and then even says false. Also sth like H1 + H2 would be great. I have no idea whether it is possible to redefine operators as in C++, but even something like **$hs.Equal(...)** or **$hs.Add(...)** would be great.

#2 - 10 Aug 2020 15:51 - John Abbott

Bernhard points out that currently a "hilbert series" is a record.
Perhaps it is best then to add a new field which contains a proper ratfn representation of the HS.
In which field should the ratfn reside? Should there be a QQ like QQ[t] for num and den?
Or perhaps instead of QQ[t]?

#3 - 03 Feb 2022 19:54 - John Abbott

- Target version changed from CoCoA-5.4.0 to CoCoA-5.4.2

#4 - 22 May 2023 21:09 - John Abbott

- Related to Bug #1745: Printing of Hilbert series via indent added